NYU | COURANT INSTITUTE OF MATHEMATICAL SCIENCES

MAY 2025

RESUME BOOK

FULL-TIME CANDIDATES

MATHEMATICS IN FINANCE

Master of Science Program

DEAR COLLEAGUE,

We are pleased to share with you the resumes of the graduate students in NYU Courant's *M.S. in Mathematics in Finance* who are on the job market and looking for full-time positions.

We believe our students are the most astute, most capable, and best trained group of students of any program. The resumes you find in this resume book describe their distinguished backgrounds. For the past years we have one of the highest placement records for internships and full-time positions. Our students enter into front office roles such as trading, portfolio or risk management, on the buy and the sell side. Their computing, quantitative modeling, and machine learning skills, as well as their hands-on practical experience, makes them productive from day one.

Our graduate-level curriculum is dynamic and challenging. For example, the first semester investment course does not end with CAPM and APT, but is a serious data- driven course that examines the statistical principles and practical pitfalls of covariance matrix estimation and portfolio construction. As part of our core curriculum, students learn the modern tools of computer science, machine learning and data science as they are used in the financial industry today. Our advanced electives cover cutting-edge topics in alternative data, algorithmic trading, computational statistics, derivatives pricing, financial machine learning, risk and portfolio management, and XVA. Our instructors are senior industry professionals and full-time faculty from NYU Courant, the top ranked department worldwide in applied mathematics. You can find more information about our curriculum and faculty at **math-finance.cims.nyu.edu/**

Sincerely yours,

Petter Kolm
DIRECTOR

Jonathan Goodman
CHAIR

Leif Anderson
INDUSTRY ADVISOR

New York University
Courant Institute of Mathematical Sciences
MS in Mathematics in Finance

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THE CURRICULUM HAS FOUR MAIN COMPONENTS

For more information about the program curriculum and course descriptions, visit math.nyu.edu/financial_mathematics/academics/courses

01. FINANCIAL THEORY, STATISTICS, AND FINANCIAL DATA SCIENCE

These courses form the core of the program, covering topics ranging from equilibrium theory, Black-Scholes, Heath-Jarrow- Morton, linear regressions, covariance matrix estimation to modern machine learning techniques and how they are used in quantitative finance.

02. PRACTICAL FINANCIAL APPLICATIONS

These classes are taught by industry specialists from prominent Wall Street firms. They emphasize the practical aspects of quantitative finance, drawing on the instructor's subject matter experience and expertise.

03. MATHEMATICAL TOOLS

This component provides appropriate mathematical background in areas like stochastic calculus and partial differential equations.

04. COMPUTATIONAL SKILLS

These classes provide students with a broad range of software skills in Java and Python, and facility with computational methods such as optimization, Monte Carlo simulation, EM-type algorithms and the numerical solution of partial differential equations.

PRACTICAL TRAINING

In addition to coursework, the program emphasizes practical experience. All students do a capstone project (the Project and Presentation course), mentored by finance professionals. Most full-time students do internships during the summer between their second and third semesters.

OUR CURRICULUM

	1ST SEMESTER	2ND SEMESTER	3RD SEMESTER
FINANCIAL THEORY, STATISTICS, AND FINANCIAL DATA SCIENCE	Financial Securities and Markets Risk and Portfolio Management Data Science and Data-Driven Modeling	Dynamic Asset Pricing Machine Learning & Computational Statistics Market Microstructure Advanced Topics In Equity Derivatives Interest Rate & Fx Models	Advanced Statistical Inference and Machine Learning Trends in Financial Data Science Time Series Analysis & Stat. Arbitrage Alternative Data in Quantitative Finance
PRACTICAL FINANCIAL APPLICATIONS		Active Portfolio Management Modeling and Risk Management of Bonds and Securitized Products Trading Energy Derivatives Algorithmic Trading & Quantitative Strategies Advanced Risk Management	Fixed Income Derivatives: Models & Strategies In Practice Trends In Sell-Side Modeling: XVA, Capital and Credit Derivatives Cryptocurrency and Blockchains: Mathematics and Technologies Project & Presentation
MATHEMATICAL TOOLS	Stochastic Calculus		
COMPUTATIONAL SKILLS	Computing in Finance Data Science and Data-Driven Modeling	Scientific Computing in Finance	

For more information about the program curriculum and course descriptions, visit [math-finance.cims.nyu.edu/academics.](math-finance.cims.nyu.edu/academics)

SICHEN (FRODO) GU

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** risk management, Fama-French, machine learning, derivatives pricing, VaR, optimization, Monte Carlo simulation

09/19 - 05/23 **NEW YORK UNIVERSITY** New York, NY
B.A. in Mathematics and Economics, Minor in Computer Science
- ***Coursework:*** linear regression, statistics, econometrics, ODEs, macroeconomic analysis
- ***Honors/Awards:*** Mathematical Association of America Problem of the Month Winners Circle, Dean's List (all academic years), NYU Founders Day Award, NYU CAS/GSAS Scholarship

EXPERIENCE

06/24 - 08/24 **JENNISON ASSOCIATES** New York, NY
Quantitative Research Intern (Python)
- Analyzed the RavenPack Whitepaper on Earnings Intelligence equity factors and presented findings to the team, illustrating the application of these factors in portfolio rebalancing
- Extracted data from Snowflake, mapped stock identifiers with company stock databases, and analyzed the correlation between earnings intelligence factor scores and stock returns
- Backtested daily and weekly portfolio rebalancing strategies based on earnings intelligence factors, experimenting with different decay days and delta periods to optimize performance
- Developed daily rebalancing strategies for the Russell 2000 universe, achieving an annualized return of 18.67%

06/23 - 08/23 **CHUANG YUAN FUTURES** Shanghai, China
Investment Research Intern (Python)
- Analyzed and processed diverse dataset comprising 127 monthly variables and 1 quarterly variable (GDP) from FRED-MD / FRED-QD dataset
- Executed data transformation, including outlier removal, to ensure variable stationarity
- Leveraged dynamic factor models on nowcasting model to produce accurate forecasts and nowcasts of economic variables
- Enabled proactive decision-making by providing early estimates of critical economic indicators
- Initiated research on hierarchical risk parity (HRP) model, including in-depth analysis of academic papers and facilitation of plans for HRP's future implementation at firm

05/22 - 08/22 **ASTOR REALTY CAPITAL** New York, NY
Private Equity Intern
- Conducted quantitative and qualitative due diligence for potential investments by computing net operating income, yield on cost, and waterfall structure profits
- Leveraged financial modeling techniques like discounted cash flow (DCF) analysis and pro forma modeling to assess projected cash flows and evaluate investment scenarios

PROJECTS

10/23 - 12/23 **Comparative Analysis of Correlation Dynamics in Financial Markets (Python)** New York, NY
- Analyzed correlations among equity indices, currency pairs, and interest rates using EWMA and GARCH models, examining market trends and VIX's role in forecasting volatility
- Evaluated asset distribution patterns of S&P 500 and other indices by calculating rolling statistics (variance, skew, kurtosis); studied asset returns against Gaussian and alternative distributions
- Compared implied and realized distributions in financial indices; employed butterfly and kernel regression methods to analyze volatility smiles and assess statistical measures of volatility trends

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Scikit-learn, PyTorch), Java, R programming, MySQL
Interests: highest amateur rank in Go (chess game), Travel (251 cities in 32 countries)
Activities: Teaching Assistant, Grader, and Peer Mentor for undergraduate math majors at NYU Courant

SHUPENG (WAYNE) GUAN

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EDUCATION

08/23 - 01/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***coursework:*** object-oriented programming, deep learning, machine learning, data-driven modelling, time-series, statistical arbitrage, cryptocurrency and blockchain, scientific computing, mortgage-backed securities, market microstructure, stochastic calculus, equity derivatives

09/21 - 07/23 **UNIVERSITY OF BIRMINGHAM** Birmingham, UK
B.S. in Mathematics With Honours (First Class)
- ***Coursework:*** applied statistics, statistics in economics, integer programming and combinatorial optimisation, numerical methods and programming, differential equations, real and complex analysis, multivariable calculus, linear algebra, mathematical finance (options theory)

09/19 - 06/21 **HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY** Wuhan, China
B.S. in Finance
- ***Coursework:*** econometrics, microeconomics, macroeconomics, accounting, money and banking, public finance, game theory
- ***Award:*** Freshman Award scholarship (50% tuition)

EXPERIENCE

06/24 - 09/24 **EASTMONEY SECURITIES CO., LTD** Shanghai, China
Quantitative Researcher Intern (Asset Management)
- Conducted research project on crowded trading risks, analyzed crowded trends to understand market mechanics, performed portfolio optimization under different rebalancing frequencies
- Developed multiple crowded risk features based on mid-frequency trading data, generated high risk-adjusted return exit signals with strong statistical significance
- Delivered an automated multi-signals risk monitoring model to alert for crowded trading risks

08/22 - 09/22 **CHINA SECURITIES CO., LTD** Shanghai, China
Data Analyst Intern (Python)
- Mocked market-making automation mechanics, revisited delta-neutral, beta hedging, grid trading and arbitrage trading algorithms; implemented dynamic hedging algorithms for OTC derivatives
- Backtested structured derivatives (auto-callables) historical win rates under various P/B ratios
- Adjusted institutional clients' portfolios based on Sharpe models; attained significant Sharpe ratio increases (25%+ average)

PROJECTS

09/24 - Now **BANK OF AMERICA MERRILL LYNCH** New York, NY
Capstone Project
- Explore high-frequency intraday correlations among return volatility, trade volumes and intensity
- Build a stochastic multiplicative error model(SMEM) to capture a latent common factor which accounts for the positive simultaneity between volatility and trade volume substantially
- Extend the SMEM framework to improve forecasting accuracy on volumes to a systematic portfolio level which is fundamental for alpha generation

01/24 - 05/24 **NYU CENTER FOR DATA SCIENCE** New York, NY
Deep Learning (Pytorch)
- Developed and trained energy-based deep neural networks within the Graph Transformer Network(GTN) framework, achieved high performance on text transcription from images
- Developed and trained Vision Transformer(ViT) on image classification tasks, demonstrated high accuracy on open-source large datasets (cats and dogs)
- Developed and trained a Mixture of Experts(MoE) on large-scale nonlinear classification tasks

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Software: Python, R, MATLAB, SQL, LaTex, Excel

Interests/Certification: Sports games betting prediction; Texas hold'em(SIG Poker Tournament NY final); Certificates of Completion for Akuna Capital Options 101 & 201 Courses

TIANBI HU

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** interest rate & FX models, market microstructure, trading energy derivatives, modeling and risk management of bonds and securitized products, financial securities and markets, risk and portfolio management, scientific computing in finance, data science and models

09/18 - 06/22 **CAPITAL NORMAL UNIVERSITY** Beijing, China
B.S. in Mathematics and Applied Mathematics
- ***Coursework:*** multivariable calculus, probability theory, mathematical statistics, linear algebra, ODE, complex analysis, graduate-level econometrics; intermediate macroeconomics
- ***Honors/Awards:*** Dean's List with Distinction (Top 4%), Outstanding Graduate Thesis, Award for Outstanding Research & Innovation, Chinese College Mathematics Competition (1st Place)
- ***Thesis:*** Parameter Calibration of SVJ Option Price Model Based on COS Method and Neural Network

EXPERIENCE

03/23 - 05/23 **RENAISSANCE ERA INVESTMENT MANAGEMENT CO., LTD** Beijing, China
Sales Associate
- Spearheaded sale of $30M in OpenAI shares to family offices, engaging in personal outreach and advisory, and crafting tailored trust product structures to meet specific investor needs
- Conducted daily market analysis to identify high-net-worth clients; maintained relationships with them; offered tailored portfolio updates, contributing to firm's growth to its $1.5B AUM goal
- Managed and updated confidential client portfolio data in firm's CRM systems, ensuring accuracy and efficiency in tracking client interactions and portfolio performance

01/23 - Present **CRYPTOCURRENCY TRADER** New York, NY
Freelance
- Communicate cryptocurrency market and performance updates with investors by interpreting crypto news, data, and regulations; clearly convey logic behind strategy that leads to profits
- Designed and backtested trading strategy for over $5M in cryptocurrencies, with average monthly return of 4.77%, by using technical data
- Constructed multi-factor model and factor analysis structure that analyzed performance of technical factors of multiple cryptocurrencies' performance

03/22 - 05/23 **PEOPLE'S BANK OF CHINA, SCHOOL OF FINANCE** Beijing, China
Research Assistant (Python, R, MATLAB)
- Collaborated with 3 colleagues to conduct macro-finance research on impact of carbon emissions on corporate profitability
- Processed data and built models, and monitored model derivation and proofs as key programmer
- Chose multiple cutting-edge and influential entrepreneurial finance and economic growth papers; summarized relevant ones for colleagues and professors

04/20 - 10/20 **FOUNDER SECURITIES CO., LTD** Beijing, China
Industry Research Intern
- Investigated industry and value chains of Chinese military and defense industry through company reports, field research, and interviews with executives
- Partnered with cross-functional teams on consulting with mutual fund and private equity clients to provide asset management strategy

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, MATLAB
Languages: English (fluent), Mandarin (native)

RUNQIAN (ELVIS) LI

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EDUCATION

NEW YORK UNIVERSITY — New York, NY
The Courant Institute of Mathematical Sciences
Expected 12/24 **M.S. in Mathematics in Finance**
- ***Coursework:*** stochastic calculus, statistical inference and machine learning, risk and portfolio management, interest rate & fx models, market microstructure, dynamic asset pricing

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
09/19 - 06/23 **B.S. in Mathematics of Computation**
- ***Coursework:*** probability theory, stochastic processes, statistics, data science, machine learning, ODE, PDE, optimization, numerical methods, data structures and algorithms, algebra (honors)
- ***Honors:*** Dean's Honors List (12 consecutive quarters)

EXPERIENCE

TECHSHARPE QUANT CAPITAL MANAGEMENT — Beijing, China
(Quantitative hedge fund with $1B AUM)
06/24 - 09/24 **Quantitative Research Intern**
- Developed 30+ alpha signals using alternative data from the ChinaScope database, incorporating financial statement notes, customer-supplier relationships, and primary company products
- Combined signals with random forest and XGBoost; backtested on long-short portfolio and achieved an annualized Sharpe ratio of 1.6+ and maintaining a maximum drawdown below 7.5%
- Constructed a trading portfolio by integrating risk controls on factor and industry exposures, inspired by the Barra USE4 model
- Designed and implemented a dynamic mechanism to determine optimal constraints for factor and industry exposures based on past volatility, improving the portfolio's annualized Sharpe ratio by 0.5+ and reducing maximum drawdown by over 1%

12/21 - 01/22 **Data Analyst Intern**
- Constructed 20+ alpha signals from daily stock prices and quarterly financials, including growth, momentum, and value signals; evaluated signals using IC, IR and WLS regression methods

CDH INVESTMENTS — Beijing, China
(Leading alternative asset management firm with $20B AUM)
07/21 - 09/21 **PE Analyst Intern**
- Facilitated investment in a biotech company by arranging and conducting interviews to gather insights on surgical products; analyzed business model and evaluated relevant risks
- Built DCF model from scratch by projecting cash flows; calculated WACC and terminal value

PROJECTS

NYU COURANT — New York, NY
05/23 - 06/23 **SABR Model Validation**
- Implemented and calibrated the SABR model on European options across various equity names and foreign currency pairs, achieving consistency between theoretical and market option prices
- Validated the SABR model in accordance with SR 11-7, performing sensitivity analysis and robustness checks under various market conditions to ensure reliable model performance

05/23 - 06/23 **Strategy Backtesting for Oil Futures**
- Applied signal blending to improve carry and momentum strategies on 12 years of WTI futures data, adjusted for expiration and roll,
- Tuned hyperparameters using grid search, backtested the strategy over 1-year out-of-sample period, achieving an annualized Sharpe ratio of 0.8+

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Softwares: Python, C++, MATLAB, R, C++, LaTeX
Languages: English (fluent), Mandarin (native)

WENSHENG LIN

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** OOP and data structure, stochastic calculus, risk & portfolio management, machine learning, Black-Scholes, algorithmic trading, interest rate & FX models, market microstructure, trading energy derivatives

08/19 - 08/23 **STONY BROOK UNIVERSITY** Stony Brook, NY
B.S., Double Major in Applied Mathematics & Statistics and Business Management
- ***Coursework:*** differential equations, probability theory, data mining, statistics, numerical analysis, data analysis, stochastic processes, time series, portfolio optimization, Lévy process, normal tempered stable distribution
- ***Honors/Awards:*** Dean's List (7 semesters)

EXPERIENCE

06/24 - 09/24 **GUOYUAN SECURITIES**
Financial Engineering Intern Shanghai, China
- Developed and tested new factors to enhance funds of funds (FOF) factor library; implemented and backtested a CSI 300 index trading strategy
- Analyzed mutual funds' stock-selection timing ability utilizing Carhart four-factor, Fama-French five-factor (with momentum), and Treynor-Mazuy models, complemented by Newey-West adjustments, instrumental variable approaches
- Applied machine learning techniques (gradient boosting, random forests) to identify mutual funds with superior stock selection ability, leveraging 12 fund characteristics including alpha t-stats, value added, and R-squared

06/21 - 08/21 **RUISI CONSULTING**
Financial Risk Intern (Python, Excel, Visio) Shanghai, China
- Cleaned and visualized data with Python (pandas, matplotlib) to fuel managers' decision making in advising major hospital and state-owned asset management clients for their internal audits
- Created internal documents (e.g., financial accounting spreadsheet) for $2B listed company client

PROJECTS

01/24 - 05/24 **NYU COURANT** New York, NY
Efficient Monte Carlo Option Pricing for Log-Uniform Jump-Diffusion Models (Python)
- Verified log-uniform jump-diffusion European option pricing formula under risk-neutral valuation, and confirmed it has higher option prices than Black-Scholes model
- Implemented Monte Carlo option pricing algorithm for log-uniform jump-diffusion model
- Reduced standard error by 2x to 10x using antithetic and control variates (ACV) in Monte Carlo simulation

01/23 - 05/23 **STONY BROOK UNIVERSITY** Stony Brook, NY
Applying Deep Learning in Option Pricing (Python)
- Applied neural networks in Black-Scholes to predict option prices; achieved low MAE
- Compared and analyzed model against Black-Scholes, demonstrating superior predictive capabilities of neural networks in option pricing

08/22 - 12/22 **Portfolio Optimization on Multivariate Normal Tempered Stable Distribution (R)**
- Outperformed S&P 500 by 12% in 2022 by dynamically calibrating tangency portfolio
- Performed mean-CVaR portfolio optimization on multivariate NTS market model
- Analyzed and obtained NTS parameters of S&P 500 and 10 selected stocks; validated suitability of applying NTS distribution to market model

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, MATLAB ***Languages:*** English (fluent), Mandarin (native)
Activities: Day trading options; Teaching Assistant at Stony Brook University for Differential Equations and Introduction to Economics course; Grader at New York University for Probability and Statistics and Analysis courses

NIDISH NARSIPUR

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EDUCATION

Expected 05/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** time series analysis, risk and portfolio management, dynamic asset pricing, algorithmic trading, machine learning and computational statistics, interest rates and fx models

09/19 - 05/23 **RUTGERS UNIVERSITY** New Brunswick, NJ
B.S. in Physics and minor in Mathematics and Computer Science
- ***Coursework:*** quantum algorithms, linear algebra, ordinary differential equations, stochastic processes, computer programming, probability theory, linear regression
- ***Honors/Awards:*** Paul Robeson Thesis Scholar, awarded High Honors in the Physics major
- ***Thesis:*** "Mitigation of Noise in Quantum Computations for Solving the Fermi-Hubbard Model"

EXPERIENCE

05/24 - 08/24 **RICOH USA** Exton, PA
Digital Services Center
Machine Learning Engineering Intern (Python)
- Built machine learning model using a combination of regressions and autoregressive methods to forecast future revenue
- Demonstrated over 80% accuracy for future predictions of high volatile revenue
- Improved forecasting accuracy of existing revenue model 3-fold
- Analyzed raw finance data to engineer features for machine learning algorithms
- Deployed model to Snowflake for future implantation by the finance team

04/22 - 08/23 **RUTGERS UNIVERSITY** New Brunswick, NJ
School of Arts and Sciences
Research Assistant (Python)
- Used linear regression analysis to reduce errors in technical/quantum computations, result: 20-fold improvement in computation
- Demonstrated 99% mitigation of errors on IBM quantum computers
- Took initiative to create error mitigation techniques in quantum computations
- Authored senior thesis and presented key results to faculty board; awarded High Honor

09/21 - 12/21 **RUTGERS UNIVERSITY** New Brunswick, NJ
School of Arts and Sciences
Learning Assistant, Analytical Physics II & Analytical Physics Lab
- Facilitated undergraduate student groups, improving their data modeling and data analysis skills
- Collaborated with multiple student groups, enhancing their problem solving and technical skills
- Conducted research on communicating multiple topics clearly and concisely

PROJECTS

08/24 - 08/24 **JPMorgan Chase & Co. Quantitative Research Virtual Experience Program on Forage** Remote
- Completed a simulation focused on quantitative research methods
- Analyzed a book of loans to estimate a customer's probability of default
- Used dynamic programming to convert FICO scores into categorical data to predict defaults

05/23 - Present **BASKETBALL PLAYOFFS SIMULATION (Python)** Remote
- Constructed algorithm in Python that takes in large set of parameters and runs Monte Carlo simulation that predicts NBA playoffs winner

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, C/C++, LaTeX, JavaScript, HTML, SAS, SQL, R, MATLAB, Maple, Origin
Languages: English (fluent), Spanish (Conversational), Kannada (native)
Affiliation/Certification: SAS Certifications: Programming on Reports, Tables Generation, Clinical Programming

RUI YANG

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, US
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** dynamic asset pricing, Monte Carlo simulation, data-driven models, penalized regression, decision trees, Black-Scholes, stochastic processes, Hull-White model

09/20 - 06/23 **UNIVERSITY COLLEGE LONDON** London, UK
B.Sc in Mathematics
- ***Coursework:*** real analysis, complex analysis, stochastic process, linear algebra, computational methods, financial mathematics, applied statistics, fluid mechanics, applied mechanics
- ***Honors/Awards:*** First-Class Honors Degree (Top 5%)

EXPERIENCE

06/23 - 08/23 **CITIC SECURITIES NATIONAL INVESTMENT BANK** Beijing, China
Quantitative Research Intern (Python, Windy)
- Extracted industry fund data and summarized strategies of tech firm clients to create detailed profit reports for IPOs
- Gathered product data from 120 funds through web crawling, contributing valuable information to build strategic allocations from Shanghai STAR Board (science, technology, and innovation)
- Researched and compiled specific STAR stocks' volatility to determine stability for client investment recommendations; quantitatively calculated volatility variations and related factors

04/21 - 07/21 **BYTEDANCE** Hangzhou, China
Data Operations Intern (SQL, Python, Excel)
- Designed and analyzed numerous A/B and multivariate tests for personalized ads strategies on apps using Python and SQL
- Traced and counted QA conversion rate for AB testing and completed data distribution analysis weekly
- Contributed to speeding up rollout time of app by 1 month by continuously improving its functionality, based on customer feedback
- Developed a machine learning model in Python to mitigate fraudulent activities in the ad recommendation system, achieving 90% training accuracy
- Implemented rule-based punitive measures to reduce ecological degradation.

PROJECTS

11/23 - 01/24 **NYU COURANT** New York, NY
Discovery of Main Asset Classes' Performance Trends and Volatility Distribution (Python)
- Compared BM and BS model stock price paths; hedged options with self-financing portfolio and plotted P&L; calculated historical and break-even volatility
- Hedged trinomial model by minimizing quadratic risk; compared its P&L with binomial models under equal initial endowment and equal delta conditions
- Summarized VIX and vol indicators modeled in EWMA and GARCH

06/21 - 07/21 **UNIVERSITY COLLEGE LONDON** London, UK
2nd Year Algebra / Number Theory / Combinatorics Projects (R)
- Led team to compile and analyze reference materials based on Artin's primitive root conjecture
- Applied equations and modeling graphs that team derived from conjectures to determine whether conclusion was true

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, SPSS, SQL, C++
Languages: English (fluent), Mandarin (native), German (beginner)

ZEHAO YANG

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** active portfolio management, feature engineering, statistical arbitrage, scientific computing in finance, alternative data in quantitative finance, deep learning

09/18 - 09/22 **WASEDA UNIVERSITY** Tokyo, Japan
School of Political Science and Economics
B.A. in Economics
- ***Coursework:*** linear algebra, calculus, real analysis, entrepreneurial finance, machine learning

08/21 - 05/22 **PURDUE UNIVERSITY** West Lafayette, IN
Study Abroad
- ***Coursework:*** object-oriented programming (Java), ODE & PDE, Markov chain, probability, time series models, C++ programming, financial mathematics, statistical analysis with R

EXPERIENCE

05/24 - 08/24 **PAVUS AI** New York, NY
Data Science Intern (Python, SQL)
- Built and maintained prediction frameworks and data pipelines using machine learning models (e.g., regressions, XGBoost, LightGBM, SARIMAX, Prophet) on commodities and financial data
- Developed Python-based ETL tools for feature engineering in financial data analysis, implementing log returns calculation, data standardization, and creation of lag features
- Built robust data handling mechanisms, including missing data imputation (comparing median imputation and KNN imputation, with median imputation proving more effective) and error logging system for manual interruption
- Optimized SARIMAX models for financial data; used PCA algorithm to reduce multicollinearity in exogenous variables; improved MSE from 0.083 to 0.007

02/23 - 03/23 **SHENZHEN CAPITAL GROUP** Shenzhen, China
Data Science Intern (Python, SQL)
- Developed machine learning model using logistic regression to forecast corporate financial fraud in publicly listed Chinese companies
- Applied lasso regression for industry-specific feature optimization in predictive modeling, identifying key factors influencing corporate financial fraud; backtested forecasting models

11/22 - 01/23 **BOSERA ASSET MANAGEMENT** Shenzhen, China
Quantitative Research Intern (Python, R)
- Worked at China's 3rd largest asset management company (AUM >$200B); Created and backtested multi-factor stock selection strategy to validate factors on CSI300 stocks
- Evaluated correlations and lag-correlations between risk factors across multi-asset portfolios to optimize performance and enhance risk management strategies
- Performed periodic PnL attribution analysis using PCA approach to understand main driven sectors of portfolio growth

PROJECT

09/23 - 12/23 **NEW YORK UNIVERSITY** New York, NY
Dynamic Options Hedging Strategy Based on BlackScholes Model
- Created dynamic options hedging strategy based on Black-Scholes with S&P 500 data
- Analyzed hedging errors for options portfolios to optimize hedging strategies; developed statistical visualizations, including histograms, to depict hedging error distribution

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C++ (STL, boost), Java, Python (pandas, numpy, matplotlib, scikit-learn, PyTorch), Git, SQL
Languages: English (fluent), Japanese (fluent), Mandarin (native), Cantonese (conversational)

THE MOST ASTUTE. THE MOST CAPABLE. THE MOST PREPARED.

OUR STUDENTS ARE READY TO GET WORK.

Connect with the students directly, or contact MathFin's Office of Career Services at:
cims-mathfin-careerservices@nyu.edu